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Update on Pest Management and Crop Development
August 22, 2011

COMING EVENTS

	43°F	50°F
Current DD accumulations		
(Geneva 1/1-8/22):	3030	2148
(Geneva 1/1-8/22/2010):	3191	2260
(Geneva "Normal"):	2812	1920
(Geneva 1/1-8/29 Predicted):	3215	2284

Coming Events – Ranges (Normal +/- Std Dev):

American plum borer		
flight subsides	2929-3365	2015-2381
Apple maggot flight subsides.....	2772-3258	1907-2283
Codling moth		
2nd flight subsides	2845-3493	1922-2472
Lesser appleworm		
2nd flight peak	2131-3105	1422-2156
Obliquebanded leafroller		
2nd flight peak	2593-3011	1758-2098
Obliquebanded leafroller		
2nd flight subsides	3095-3473	2121-2457
Oriental fruit moth		

3rd flight peak 2662-3236 1831-2243
Oriental fruit moth
3rd flight subsides 2928-3412 1978-2310
Peachtree borer flight subsides ..2478-3126 1672-2180
Redbanded leafroller
3rd flight peak 2717-3207 1881-2225
Redbanded leafroller
3rd flight subsides 3124-3436 2142-2422
San Jose scale
2nd flight subsides 2639-3349 1785-2371
STLM 3rd flight peak 2552-3010 1732-2094

TRAP CATCHES (Number/trap/day)

Geneva	8/11	8/15	8/18	8/22
Redbanded Leafroller	0.2	0.0	0.2	0.0
Spotted Tentiform Leafminer	11.2	11.6	13.2	14.1
San Jose Scale	10.2	6.1	4.8	15.3
Oriental Fruit Moth	0.5	0.1	0.0	0.3
American Plum Borer	0.0	0.0	0.2	0.0
Obliquebanded Leafroller	0.0	0.0	0.0	0.0
Apple Maggot	5.7	2.5	3.5	2.3

Sodus Center (Wayne Co.)	8/4	8/11	8/16	8/18
Oriental Fruit Moth	0.5	2.5	1.5	0.5
Lesser Appleworm	3.0	17.0	3.0	2.0
Codling Moth	0.0	3.0	0.0	0.5

Highland (Peter Jentsch)	8/1	8/8	8/15
Redbanded Leafroller	<0.1	0.9	1.3
Spotted Tentiform Leafminer	19.5	30.1	25.2
Oriental Fruit Moth	0.4	1.1	2.5
Lesser Appleworm	3.0	3.2	0.6
Codling Moth	1.3	2.7	2.3
Obliquebanded Leafroller	0.1	0.2	0.2
Apple Maggot	0.6	2.1	1.7

ORCHARD RADAR DIGEST
[Box Text: OFF THE AIR]

[M = Marlboro, Ulster Co.; G = Geneva]
Codling Moth
CM development as of August 22: 2nd gen adult emergence at 100% [M]/98% [G] and 2nd gen egg hatch at 100% [M]/85% [G].

[Section: INSECTS]

TWO-MINUTE WARNING
(Art Agnello, Entomology, Geneva)
[Box text: THE REFS SAY...]

Every season is unusual in some unique way; it's something of a wonder that the trees and the crop seem to make it all work out pretty well by the time we get to harvest each year. The weather pattern this season seemed to mimic a house with irregular plumbing and heating, but the biggest challenges were more horticultural (pollination and thinning) and disease-related (name it) than entomological. Our normal pests were there, as usual, but there don't seem to have been many real crises. Now, with harvest approaching, there may be just a few remaining pest management duties.

Of greatest potential concern are the **internal leps**, which have been noticeable, as usual, but not overwhelming in the normal trouble spots; however, there are still oriental fruit moths and even a few codling moths flying in some sites. Therefore, to be cautious, we shouldn't rule out the possibility that blocks with a history of internal worm problems might need a last-minute application of an appropriate-length PHI material to help stave off the final feeding injury caused by young larvae. Before the harvest period begins in earnest, a fruit examination could help determine whether the last brood of any of the likely species needs a final deterrent before the sprayer is put

away. Potential choices (and PHIs) include Altacor (5/10 days, pome/stone fruits, respectively), Assail (7 days), a B.t. (0 days), Belt (14/7 days, pome/stone fruits, respectively), Calypso (30 days), Delegate (1 day, peaches; 7 days, apples/pears/plums), a pyrethroid (PHI varies), or a sprayable pheromone (0 days), as applicable. **Apple maggots** are also continuing to emerge, even heavily in some sites; possible late-season options include Assail (7 days), Calypso (30 days), Guthion (14/21 days, depending on rate), Imidan 7 days), and various pyrethroids.

A couple of less common last-minute pests can surfaced in certain cases. One is **western flower thrips**, particularly in nectarines growing in drought-stressed areas. Adults move from alternate weed or crop hosts to fruit just prior to and during harvest, feed on the fruit surface in protected sites, such as in the stem end, the suture, under leaves and branches, and between fruits. This results in silver stipling or patches; injury is particularly obvious on highly colored varieties. An application of Delegate immediately before the first harvest may prevent subsequent losses; however, an additional application may be needed if pressure is severe. The PHI varies from 1 day (nectarines) to 7 days

(cherries, plums, and prunes) to 14 days (peaches and apricots).

Another season-end problem that may deserve consideration now is **pearleaf blister mite,** a sporadic pest of pears that shows up in a limited number of commercial pear orchards and is a fairly common problem in home plantings. The adults are very small and cannot be seen without a hand lens; the body is white and elongate oval in shape, like a tiny sausage. The mite causes three distinct types of damage. During winter, the feeding of the mites under the bud scales is believed to cause the bud to dry and fail to develop. This type of damage is similar to and may be confused with bud injury from insufficient winter chilling. Fruit damage is the most serious aspect of blister mite attack. It occurs as a result of mites feeding on the developing pears, from the green-tip stage through bloom, causing russet spots. These spots, which are often oval in shape, are usually depressed with a surrounding halo of clear tissue. They are 1/4–1/2 inch in diameter and frequently run together. A third type of injury is the blistering of leaves; blisters are 1/8–1/4 inch across and, if numerous, can blacken most of the leaf surface. Although defoliation does not occur, leaf

function can be seriously impaired by a heavy infestation.

The mite begins overwintering as an adult beneath bud scales of fruit and leaf buds, with fruit buds preferred. When buds start to grow in the spring, the mites attack developing fruit and emerging leaves. This produces red blisters in which female blister mites then lay eggs. These resulting new colonies of mites feed on the tissue within the protection of the blister, but they can move in and out through a small hole in its center. The mites pass through several generations on the leaves but their activity slows during the warm summer months. The red color of the blisters fades and eventually blackens. Before leaf fall, the mites leave the blisters and migrate to the buds for the winter.

For those plantings that might be suffering from this errant pest, a fall spray is recommended sometime in early October, when there is no danger of frost for at least 24–48 hr after the spray. Use Sevin XLR Plus (1.5–3 qt/A) or 80S (1.88–3.75 lb/A), or 1–1.5% oil plus either Diazinon 50WP (1 lb/100 gal) or Thionex (50WP, 0.5–0.75 lb/100 gal; 3EC, 0.33–0.5 qt/100 gal). A second spray of oil plus Thionex, in the spring, just

before the green tissue begins to show, will improve the control.

[Section: DISEASES]

THE SUMMER DISEASE THREAT FOR APPLES
(Dave Rosenberger, Plant Pathology, Hudson Valley Lab, Highland)
[Box text: READY TO GROW]

Sooty blotch and flyspeck (SBFS) and the summer fruit rots (black rot, white rot, and bitter rot) sometimes appear on apple fruit during the last few weeks before harvest if fungicide sprays are terminated too early in August. These late-season outbreaks of summer diseases and fruit rots occur when inoculum is abundant and when rainfall after the last fungicide application removes all fungicide residues several weeks prior to harvest.

Initial observations on SBFS incidence this summer combined with the 15-day weather forecast suggest that conditions during fall of 2011 may favor SBFS development prior to harvest. The extended wet and rainy periods that occurred last spring when trees were at late bloom or petal fall set the stage, because those

rains favored primary infections of SBFS in wild host plants in the woodlots and hedgerows surrounding orchards. In the Hudson Valley, rains during June and early July generated enough hours of leaf wetness to allow SBFS to appear on unsprayed fruit in our research plots during the last few days of July. The severity of those initial signs on fruit suggested that fruit were exposed to very high levels of inoculum coming from hedgerows. Extended wetting periods during the first three weeks of August have favored continued spread and development of SBFS while the rainfall (6.15 inches since 1 Aug here at the Hudson Valley Lab) has regularly removed fungicide protection.

Evidence from previous field trials indicates that none of our fungicides will protect against SBFS after sprayed trees are exposed to more than 2.0 to 2.5 inches of rainfall. Those field trials also suggest that SBFS infections that become established on unprotected fruit during summer can be suppressed (i.e., the fungicides will stop growth that leads to visible signs on the fruit), but infections established on unprotected fruit are never fully eradicated by subsequent fungicide sprays. Thus, where orchards received more than two inches of rain in early August and fungicides were not reapplied for several days, one should assume that SBFS is now

present on fruit surfaces and will need to be suppressed by fungicide coverage between now and harvest. If fungicide residues are fully depleted for several weeks prior to harvest, then those infections may begin growing again and will become visible on fruit shortly before harvest.

The shortest interval that I recall between SBFS infection and appearance of economically important levels of SBFS on fruit occurred in 2004, when 2.1 inches of rainfall occurred 20–22 August, after many growers had made their last fungicide application. September was very wet, and we accumulated enough hours of wetting to allow SBFS to appear on fruit in many orchards by Sept. 27, or about 30 days after the first rains that occurred following the depletion of fungicide residues on 22 August. This experience led to the recommendation that, if more than two inches of rainfall occurs after the "last" fungicide application in late August or early September, then another fungicide spray should be applied to any blocks that will not be harvested within 30 days. However, if fruit were left unprotected earlier in summer, as may have occurred with our early August rains this year, then SBFS might appear even more quickly during the preharvest interval after fungicide protection expires. Thus,

fungicides might need to be reapplied following heavy rains for any blocks that will not be harvested within 20 or 25 days counting from the time that residues from the previous fungicide were exhausted (i.e., >2 inches of rain since the last application).

The pathogens causing fruit rots may also become established on fruit if summer rains leave fruit unprotected for periods during late July and August, or if fungicide sprays are terminated too early and heavy rains in late August remove all of the fungicide protection. Black rot caused by *Botryosphaeria obtusa* can initiate infections at fruit lenticels during late summer. These infections may be invisible at harvest, or they may appear as small black spots at the lenticels. However, both the quiescent infections and the lenticel spots can develop into full-blown fruit decays during storage, especially for fruit held in air storage, and especially if takes several weeks to cool fruit to below 40°F after harvest.

Some fruit processing buyers have begun to reject fruit with severe SBFS because, as I understand it, they feel that fruit with severe SBFS are likely to also carry quiescent infections of fruit decay fungi that will cause losses during storage. Thus, even processing growers

may need to pay more attention to preventing SBFS during late summer than has been the case in the past.

The extremely hot weather during the third week of July caused sunburn and/or heat injury occasionally on fruit of many different apple cultivars. Field observations suggest that apples that have suffered heat stress are more susceptible to both black rot and to bitter rot (caused by *Colletotrichum* species) than would otherwise be the case. The sunburn and heat stress effects that are already visible should serve as a warning that late-season fruit rots could be more problematic than usual this year, especially if we have a wet harvest season.

Fungicide options for controlling SBFS and late-season fruit rots include Pristine, Topsin M plus Captan, Flint plus Captan or Sovran plus Captan, or Captan plus a phosphite fungicide. Captan is the best fungicide for controlling bitter rot. If bitter rot is already present on some fruit, then Captan should be included even where Pristine is applied, and Captan rates should be raised to at least 3 lb/A of Captan 80W or the equivalent of another captan formulation. Bitter rot appears as tan sunken lesions on the sides of fruit, and the lesions will have slimy orange spores in their centers if fruit are

damp or if the fruit are incubated in a plastic bag with a wet paper towel for a day or two. Bitter rot can spread rapidly during hot wet weather in late summer, and it sometimes causes storage decays in fruit that were exposed to high levels of inoculum shortly before harvest and that were then cooled slowly after being moved into cold storages.

In the absence of bitter rot, Pristine alone or the combination of Topsin M plus Captan (2 lb/A of Captan 80W) should provide protection against both SBFS and black rot. Flint and Sovran sometimes fail to control a sooty blotch species that gives yellow-skinned fruit a cloudy gray cast. Therefore, these two fungicides are not recommended as the final spray for yellow-skinned cultivars. The combination of Captan-80 at 2 lb/A plus a phosphite fungicide will provide protection against SBFS equal to that provided by Topsin M at 12 oz/A plus Captan-80 at 2 lb/A. However, Topsin M will help to control black rot fruit decays, whereas the phosphite fungicides are not very effective against black rot. Therefore, where Captan plus a phosphite are used in the final sprays of the season and fruit rot problems are anticipated, the rate of Captan in that combination should be raised to 3 or 4 lb/A of Captan-80W.

The higher rates of Captan are also recommended for orchards where scab inoculum is high and pinpoint scab is a concern. Pristine applied in late August or September should protect fruit from pinpoint scab, but Topsin M and the phosphite fungicides are not dependable for late-season scab protection, and the rates of Captan used with Topsin or phosphite fungicides must therefore be higher where extended protection against pinpoint scab is desired.

Both SBFS and summer fruit rots are more prevalent in areas close to inoculum sources and in trees that dry slowly following rains or dews. SBFS is generally greatest along orchard perimeters where inoculum coming from wild hosts is especially abundant. Black rot is most prevalent on cultivars that retain thinned fruitlets that can serve as subsequent inoculum sources. Cultivars especially prone to having retained fruitlets include Cortland, Cameo, Fortune, Honeycrisp, Idared, and Northern Spy, among others.

Finally, late-summer fungicide applications can do their job only if they reach their targets. Alternate row sprays will not provide adequate coverage of fruit surfaces at this time of year, especially in larger trees with a heavy crop load.

[Section: GENERAL INFO]

EVENT REMINDERS

CORNELL FRUIT PEST CONTROL FIELD DAYS

The N.Y. Fruit Pest Control Field Days will take place during Labor Day week on Sept. 7 and 8 this year, with the Geneva portion taking place first (Wednesday Sept. 7), and the Hudson Valley installment on the second day (Thursday Sept. 8). Activities will commence in Geneva on the 7th, with registration, coffee, etc., in the lobby of Barton Lab at 8:30 am. The tour will proceed to the orchards to view plots and preliminary data from field trials involving new fungicides, bactericides, miticides, and insecticides on tree fruits and grapes. It is anticipated that the tour of field plots will be completed by noon. On the 8th, participants will register at the Hudson Valley Laboratory starting at 8:30, after which they will view and discuss results from field trials on apples and other fruit crops. No pre-registration is required for either event.

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